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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. |
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| 09/036,113 | 03/06/98 | CUPP M | 5721-5 |

HM11/0624
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| EXAMINER | |
|---|---|
| KAUFMAN, C | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 1646 | 7 |

**DATE MAILED:** 06/24/99

**Please find below and/or attached an Office communication concerning this application or proceeding.**

**Commissioner of Patents and Trademarks**

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 09/036,113 | CUPP ET AL. | |
| | Examiner | Art Unit | |
| | Claire M. Kaufman | 1646 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

**Status**

1)☒ Responsive to communication(s) filed on *22 March 1999* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) *7-17* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6 and 18-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☒ Claims *1-21* are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved.

12)☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. § 119**

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

a)☐ All b)☐ Some * c)☐ None of the CERTIFIED copies of the priority documents have been:

1.☐ received.

2.☐ received in Application No. (Series Code / Serial Number) _____ .

3.☐ received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☒ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. & 119(e).

**Attachment(s)**

14) ☐ Notice of References Cited (PTO-892)
15) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
16) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *4* .
17) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
18) ☐ Notice of Informal Patent Application (PTO-152)
19) ☐ Other: .

## DETAILED ACTION

The amendment filed March 22, 1999 has been entered.

The Group and/or Art Unit location of your application in the PTO has changed. To aid in correlating any papers for this application, all further correspondence regarding this application should be directed to Group Art Unit 1646.

### *Election/Restrictions*

Restriction to one of the following inventions is required under 35 U.S.C. 121:

I. Claims 1-6 and 18-20, drawn to a protein and compositions, classified in class 530, subclass 300.

II. Claims 7-15, drawn to a nucleotide sequence, vector, host cell and method of producing the encoded protein, classified in class 435, subclass 69.1.

III. Claims 16 and 17, drawn to a method of treating, classified in class 514, subclass 12.

The inventions are distinct, each from the other because of the following reasons:

The protein of Invention I is related to the nucleotide sequence of Invention II by virtue of being encoded by the same. The polynucleotide has utility for the recombinant production of the protein in a host cell, as recited in claim 15. Although the polynucleotide and protein are related since the polynucleotide encodes the specifically claimed protein, they are distinct inventions because the protein product can be made by another and materially different process, such as by synthesis or purification from the natural source. Further, the polynucleotide may be used in processes other than the production of the protein, such as in nucleic acid hybridization assay.

Inventions I and III are related as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of using that product (MPEP

§ 806.05(h)). In the instant case the protein and compositions can be used in another materially different process such as in the production of an antibody.

The nucleotide sequence of Invention II is related to the method of Invention III in that it encodes the protein used in that method. However, the nucleotide sequence itself cannot be used in the method and can be used in another materially different process such as in identification of related polynucleotides through nucleic acid hybridization.

Because these inventions are distinct for the reasons given above, have acquired a separate status in the art as shown by their different classification and because of their recognized divergent subject matter, and the searchs for the inventions are not coextensive, restriction for examination purposes as indicated is proper.

During a telephone conversation with Murry Sprull on March 19, 1999 a provisional election was made with traverse to prosecute the invention of Group I, claims 1-6 and 18-20. Affirmation of this election must be made by applicant in replying to this Office action. Claims 7-17 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a petition under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

### *Sequence Listing*

The CRF has been corrected by the US PTO STIC staff by deleting *ending* stop codon in amino acid sequence 2 and adjusting the "(A)Length:" field accordingly (error due to a PatentIn bug). This is noted for Applicants' information, and no action by Applicants is necessary.

### *Claim Rejections - 35 USC § 112*

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1, 6, 20 and dependent claims 2-5 and 21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1, 6 and 20 are indefinite because applicants have not distinctly claimed there subject matter which they regard as their invention since the protein is only described by a general activity and a tissue source from which it can be isolated. The claims are devoid of any classical biochemical features by which the protein can be identified, for example an approximate molecular weight or other structural characteristic that would help distinguish it.

Claim 6 is indefinite because the claim it depends on states that the protein is isolated from salivary glands, but claim 6 says the protein is produced by recombinant methods. It is unclear how the protein can both be isolated from a natural source and be produced recombinantly. It is suggested that phrasing in independent claim 1 such as: 'wherein said protein is *isolateable* from the salivary glands...' would obviate this rejection.

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-6 and 18-21 are rejected under 35 U.S.C. 102(b) as being anticipated by Abebe et al. (J. Insect Physiol., 1995, 8, cited by Applicants) and as evidenced by the instant specification on pages 13-15.

Abebe et al. teach a protein having anti-thrombin activity isolated from the salivary gland of Nematocera *Simulium vittatum*. Although the partial protein sequence shown in Figure 4 of Abebe et al. differs by several amino acids compared to the corresponding region of SEQ ID

NO:2 of the current application, it appears that the differences occurred through sequencing errors of one of the sequences because the proteins were isolated from the same stock of flies (continuous culture of females from University of Arizona), using identical methods for both the isolation and analysis of anti-thrombin activity (see "EXPERIMENTAL" (pages 13-15) of the instant specification and "MATERIALS AND METHODS" of Abebe et al.), and have identical weights:11,334 Daltons (page 15, line 27 of specification and middle of first paragraph on page 1005 of Abebe et al.). It is noted that the specification does not distinguish any specific properties unique to a recombinantly produced protein, so that claims drawn to such proteins are anticipated by the naturally occurring protein. Also taught is the protein in a solution of 1% BSA (p. 1003, end of second paragraph), which is a pharmaceutical carrier, and in solution is a pharmaceutical composition useful inhibition of thrombin activity.

***Prior Art***

The prior art made of record by Applicants and not relied upon is considered pertinent to applicant's disclosure. Abebe et al. (J. Med. Entomol.,1996, 7) teach a protein fraction with anti-factor V (factor V being a coagulant) activity isolated from *Simulium* salivary glands. Abebe et al. (J. Med. Entomol., 1994, 6) teach isolation of a protein with anti-factor Xa activity isolated from *Simulium* salivary glands. It is stated that this activity is distinct from anti-thrombin activity (p. 908, col. 1, first paragraph). Sarmientos et al. (US Patent 5,356,875, 1) teach an anti-thrombin polypeptide purified from leech.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Claire M. Kaufman, whose telephone number is (703) 305-5791. Dr. Kaufman can generally be reached Monday through Friday from 8:00AM to 4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paula Hutzell, can be reached at (703) 308-4310.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0196.

Official papers filed by fax should be directed to (703) 308-4242. Faxed draft or informal communications with the examiner should be directed to (703) 308-0294. NOTE: If applicant *does* submit a paper by fax, the original signed copy should be retained by the applicant or applicant's representative. NO DUPLICATE COPIES SHOULD BE SUBMITTED so as to avoid the processing of duplicate papers in the Office. **Please** advise the examiner at the telephone number above before facsimile transmission.

Claire M. Kaufman, Ph.D.

Claire M. Kaufman

Patent Examiner, Art Unit 1646

June 19, 1999